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Titolo	Emergent Properties in Natural and Artificial Dynamical Systems [[electronic resource] /] / edited by Moulay Aziz-Alaoui, Cyrille Bertelle
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Collana	Understanding Complex Systems, , 1860-0832
Disciplina	003/.85
Soggetti	Vibration Dynamical systems Dynamics Statistical physics Applied mathematics Engineering mathematics Ergodic theory Vibration, Dynamical Systems, Control Complex Systems Mathematical and Computational Engineering Dynamical Systems and Ergodic Theory Statistical Physics and Dynamical Systems Electronic books.
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	General Introduction -- From Trajectory Control to Task Space Control – Emergence of Self Organization in Complex Systems -- Natural Systems Modeling -- Competing Ants for Organization Detection Application to Dynamic Distribution -- Problem Solving and Complex Systems -- Changing Levels of Description in a Fluid Flow Simulation -- DNA Supramolecular Self Assemblies as a Biomimetic Complex System -- Dynamic Systems & Synchronization -- Slow Manifold of a

Neuronal Bursting Model -- Complex Emergent Properties and Chaos (De)synchronization -- Robust ? Filtering Based Synchronization for a Class of Uncertain Neutral Systems -- Decision Support System -- Automata-Based Adaptive Behavior for Economic Modelling Using Game Theory -- A Novel Diagnosis System Specialized in Difficult Medical Diagnosis Problems Solving -- Constraint Programming and Multi-Agent System Mixing Approach for Agricultural Decision Support System -- Spline Functions -- Complex Systems Representation by C k Spline Functions -- Computer Algebra and C k Spline Functions: A Combined Tools toSolve Nonlinear Differential Problems -- Control -- Decoupling Partially Unknown Dynamical Systems by State Feedback Equations -- Eigenfrequencies Invariance Properties in Deformable Flexion-Torsion Loaded Bodies -1- General Properties -- Eigenfrequencies Invariance Properties in Deformable Flexion-Torsion Loaded Bodies -2- The Compliant Case.

Sommario/riassunto

An important part of the science of complexity is the study of emergent properties arising through dynamical processes in various types of natural and artificial systems. This is the aim of this book, which is the outcome of a discussion meeting within the first European conference on complex systems. It presents multidisciplinary approaches for getting representations of complex systems and using different methods to extract emergent structures. This carefully edited book studies emergent features such as self organization, synchronization, opening on stability and robustness properties. Invariant techniques are presented which can express global emergent properties in dynamical and in temporal evolution systems. This book demonstrates how artificial systems such as a distributed platform can be used for simulation used to search emergent placement during simulation execution.